



U.S. Department  
of Transportation  
Federal Aviation  
Administration

# Advisory Circular

Subject:

CREWMEMBER TRAINING ON  
IN-FLIGHT RADIATION EXPOSURE

Date: 5/19/94

Initiated by: AFB 200

AC No: 120- 61

Change:

1. PURPOSE. The purpose of this advisory circular (AC) is to recommend subjects to be covered in air carrier programs designed to: (1) inform crewmembers about radiation exposure and known associated health risks; and (2) assist crewmembers in making informed decisions with regard to their work on commercial air carriers. While the AC provides a possible outline of courses, actual subject material should be gathered by the air carriers.

2. BACKGROUND. Air carrier crewmembers are occupationally exposed to low doses of ionizing radiation from cosmic radiation and from air shipments of radioactive materials. In a Presidential document, "Radiation Protection Guidance to Federal Agencies for Occupational Exposure," 52 Fed. Reg. 2822-2834 (1987), it is recommended that workers occupationally exposed to ionizing radiation, and managers of these activities, receive instruction on possible health effects associated with such exposure and appropriate radiation protection practices. The Federal Aviation Administration (FAA) has provided information concerning in-flight radiation in the Office of Aviation Medicine report No. DOT/FAA/AM-92-2, "Radiation Exposure of Air Carrier Crewmembers II." This document is available through the National Technical Information Service, Springfield, Virginia 22162.

3. DISCUSSION. It is recommended that the following topics be covered to inform crewmembers about radiation exposure. These topics need not be covered in this order, although this is one logical sequence:

a. Types and amounts of radiation received during air travel, as well as comparisons with other sources of exposure, e.g., radon exposure in the home and medical x-rays.

b. Variables that have an effect on the amount of radiation exposure in flight (such as altitude, latitude, and solar flares).

c. Guidelines regarding exposure to ionizing radiation, including recommended limits for workers and the general public.

d. The risks to crewmembers and fetuses associated with exposure to cosmic radiation include:

(1) The health effects of ionizing radiation at air carrier flight altitudes (expressed in likelihood of health problems such as cancer, genetic defects, or birth defects);

(2) Uncertainties about effects of low doses of radiation; and

(3) Comparison of health risks from galactic radiation exposure with other health risks.

e. Special consideration during pregnancy, including the importance of early recognition and prompt reporting of a pregnancy to management; the voluntary nature of this disclosure; employee and management responsibility to ensure that exposure of the unborn child not exceed recommended limits.

f. Managing exposure to radiation risks, including:

(1) How changes in amount or type of flight assignments alters estimated risk;

(2) How changes in amount or type of flight assignments can affect proximity to recommended limits; and

(3) How crewmembers may obtain estimates of the amounts of cosmic radiation received during flight segments: monitoring devices and/or a computer program.

g. Radioactive material shipments as sources of radiation exposure.

h Any other subjects which the air carrier believes would improve **crewmembers'** knowledge of exposure to radiation.



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